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10/626,735	07/25/2003	Leonard Forbes	M4065.0181/P181-B	9702

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EXAMINER	
TRA, ANH QUAN	

ART UNIT	PAPER NUMBER
2816	

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/626,735	FORBES, LEONARD	
	Examiner	Art Unit	
	Quan Tra	2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *67-82,86-89 and 92-98* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *67-82,86-89 and 92-98* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This office action is in respond to the Request for Reconsideration filed 1/13/06. The rejection in previous office action is maintained.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 67-82, 86-89 and 98 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant admitted prior art in USP 6377084 in view of Nishimura et al. (USP 5013942) and Doblar et al. (USP 6477205).

As to claim 87, the prior art figure 2 in USP 6377084 shows a signal transmission system comprising: a first transmission member (I1) having a first length, the first transmission member including a transmission medium (inherent); a second transmission member (I2) having a second length, the second transmission member including the transmission medium (inherent); a signal receiver (the differential amplifier) having first and second signal inputs coupled to the first and second transmission members respectively; first and second signal generators (the transistors that generate Isignals) coupled to the first and second transmission members respectively. Thus, figure 2 shows all limitations of the claim except for "an impedance adjusting component coupled to the second transmission member". However, Nishimura et al.'s figure 5 shows a signal transmission system having an impedance adjusting component (C12) coupled to the second transmission member (line between nodes 5A and 5C) in order to reduce signal skew.

Therefore, it would have been obvious to one having ordinary skill in the art to add impedance adjusting component to one of the transmission member in the prior art figure 2 of USP 6377084 for the purpose of reducing signal skew. The prior art further fails to shows termination circuit connected to at least one of the transmission members. However, Doblar et al.'s figure 8 shows termination circuits 106 and 108 respectively connected the transmission members 84 and 86 in order to eliminate reflection. Therefore, it would have been obvious to one having ordinary skill in the art to add termination circuit for each of the prior art's transmission members for the purpose of eliminating signal reflection, thereby saving power consumption. The modified prior figure 2 in USP 6377084 further fails to teach that the impedance of the transmission member is less than 100 ohms. However, it is notoriously well known in the art that the impedance of the transmission member is proportional to the power consumption. Further, the impedance of transmission line is normally 50 Ohms. Therefore, it would have obvious to one having ordinary skill in the art to use 50 Ohms transmission line for each of the prior art's transmission member for the purpose of saving power consumption.

Claim 67 recites similar limitations of claim 87. Therefore, it is rejected for the same reasons.

As to claim 68, the modified Applicant's prior art figure 2 shows all limitations of the claim except the impedance adjusting component comprises: an electrical inductor. However, it is notoriously well known in the art that the impedance of parallel connected capacitor is equal to the impedance of serial connected inductor (impedance of capacitor is $1/j\omega C$, and impedance of inductor is $j\omega L$). Therefore, it would have been obvious to one having ordinary skill in the art to

use series connected inductors for the impedance adjusting component due to doctrine equivalent function.

As to claim 69, the modified Applicant's prior art figure 2 fails to shows the electrical inductor comprises a spiral inductor. However, it is well known in the art that spiral inductor is used in high speed environment. Therefore, it would have been obvious to one having ordinary skill in the art to use spiral inductors for the impedance adjusting component for the purpose of operating in a high speed environment.

As to claim 70, the modified Applicant's prior art figure 2 shows impedance adjusting component comprises: a material (the newly added inductors) having; a magnetic permeability, the material adapted to be incorporated into the second transmission member.

As to claim 71, Nishimura et al.'s figure 5 shows the impedance adjusting component comprises: an electrical capacitor (C12).

As to claim 72, the modified Applicant's prior art figure 2 shows the relationship established between respective transmission times that comprises equalization of the respective transmission times.

As to claim 73, the modified Applicant's prior art figure 2 shows the first length is different from the second length and the respective transmission times through the respective first and second transmission members are equal.

As to claim 74, it is inherent that the transmission medium comprises an electrical transmission medium.

As to claim 75, the modified Applicant's prior art figure 2 shows the electrical transmission medium comprises a first conductor, a second conductor, and a dielectric material (inherent) disposed between the first conductor and the second conductor.

As to claim 76, the modified Applicant's prior art figure 2 shows the electrical transmission medium comprises a first conductor; a second conductor; and an evacuated region (inherent) disposed between the first conductor and the second conductor.

As to claim 77, the modified Applicant's prior art figure 2 shows the electrical transmission medium comprises first and second conductors disposed in a coaxial relationship to one another and a dialectic medium disposed between the first and second conductors.

As to claim 78, the modified Applicant prior art figure 2 fails to shows that the medium is optical medium. However, it is seen as an intended use for using the modified prior art figure 2 in optical medium because the modified prior art figure 2 capable of operating in optical medium

As to claim 79, the modified Applicant's prior art figure 2 fails to shows the capacitor C12 comprises a plurality of capacitors. However, it is notoriously well known in the art that a capacitor can be made by plurality of small capacitor connected in parallel (Ctotal = C1+C2+...Cn). Therefore, it would have been obvious to one having ordinary skill in the art to use plurality of parallel capacitors for Nishimura et al.'s capacitor 12 in order to meet a desired capacitance.

As to claim 80, Applicant's prior art figure 2 shows the first and-second signals comprise first and second digital signals.

As to claim 81, Applicant's prior art figure 2 shows first and second signal receivers (T1, T3 and T5; T2, T4 and T6) coupled to the first and second transmission members at respective first and second signal inputs.

As to claim 82, the modified Applicant's prior art figure 2 shows the first input has an input impedance substantially equal to a characteristic impedance of the first transmission member (because of the newly added termination circuits) and the second input has an input impedance substantially equal to a characteristic impedance of the second transmission member.

As to claim 86, the prior art figure 2 shows that the first receiver (T1, T3, T5) comprises a first input (note 5) adapted to be coupled to the first transmission member and a second input (gates of T1 and T3) adapted to be coupled to a reference signal.

Claims 88 and 89 recite similar limitations of claim 87. Therefore, they are rejected for the same reasons.

As to claim 98, the modified prior art figure 2 shows the termination circuit terminates at least a first characteristic impedance of the first transmission member and the second characteristic impedance of the second transmission member.

3. Claims 92-97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishimura et al. (USP 5376842) in view of Doblar et al. (USP 6477205).

As to claim 92, Nishimura et al.'s figure 5 shows a method of synchronizing first and second operations of respective first and second circuits (11-1, 11-2) comprising: receiving a first signal transition at the first circuit through a first transmission member (line between nodes 5A and 5C), the first transmission member having a first signal propagation factor and a first geometric length, the first signal propagation factor related to a first characteristic impedance of

the first transmission member; receiving a second signal transition at the second circuit through a second transmission member (line between nodes 5A and 5D), the second transmission member having a second signal propagation factor and a second geometric length, the second signal propagation factor related to a second characteristic impedance of the second transition member, the second geometric length different from the first genetic length; and receiving the first and second signal transitions at the first and second transmission members synchronously. Thus, figure 5 shows all limitations of the claim except for the step of "terminating the first characteristic impedance of the first transmission member and the second characteristic impedance of the second transmission member". However, Doblar et al.'s figure 8 shows a termination circuit 108 coupled to clock line 86 for reducing the signal reflection in the clock line. Therefore, it would have been obvious to one having ordinary skill in the art to add termination circuit for each of the clock lines in Nishimura et al.'s figure 5 for the purpose of eliminating signal reflection, thereby saving power consumption. Nishimura et al. fails to show that the impedance of the tranmission member are less than 100 Ohms. However, it is notoriously well known in the art that the impedance of the transmission member is proportional to the power consumption. Further, the impedance of transmission line is normally 50 Ohms. Therefore, it would have obvious to one having ordinary skill in the art to use 50 Ohms transmission line for each of the prior art's transmission member for the purpose of saving power consumption.

As to claim 93, figure 5 shows the receiving the first and second signal transitions at the first and second transmission members synchronously comprises receiving the first and second signal transitions at the first and second transmission members substantially simultaneously.

As to claim 94, figure 5 shows the second characteristic impedance depends on an impedance of at least one impedance (of C12) modifying component coupled to the second transmission member.

As to claim 95, the modified Nishimura et al.'s figure 5 fails to shows the impedance modifying component comprises a spiral inductor. However, it is notoriously well known in the art that the impedance of parallel connected capacitor is equal to the impedance of serial connected inductor (impedance of capacitor is $1/j\omega C$, and impedance of inductor is $j\omega L$). Therefore, it would have been obvious to one having ordinary skill in the art to use series connected inductors for the impedance adjusting component due to doctrine equivalent function. It is also well known in the art that spiral inductor is used in high speed environment. Therefore, it would have been obvious to one having ordinary skill in the art to use spiral inductors for the impedance adjusting component for the purpose of operating in a high speed environment.

As to claim 96, figure 5 shows the impedance modifying component comprises a capacitor.

As to claim 97, figure 5 shows the second characteristic impedance depends on a magnetic permeability of a material incorporated into the second transmission member (it is inherent the transmission lines have parasitic inductance).

Response to Arguments

4. Applicant's arguments have been fully considered but they are not persuasive.

Applicant argues that there is no support or evidence for the official notice taken by the Examiner. The Examiner respectfully disagrees. It is notoriously well known Power is equal to the product of voltage and current ($P = I*V$), and it is known that voltage is equal to the product

of current and impedance (V = I*Z) (Z is impedance). Therefore, $P = I^2*Z$. Thus, power is proportional to impedance. The two references cited in previous office action teach that the impedance of transmission line usually 50 Ohms. Therefore, such evidences support the official notice taken by the Examiner.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan Tra whose telephone number is 571-272-1755. The examiner can normally be reached on 8:00 A.M.-5:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

QUAN TRA
PRIMARY EXAMINER
ART UNIT 2816

February 21, 06